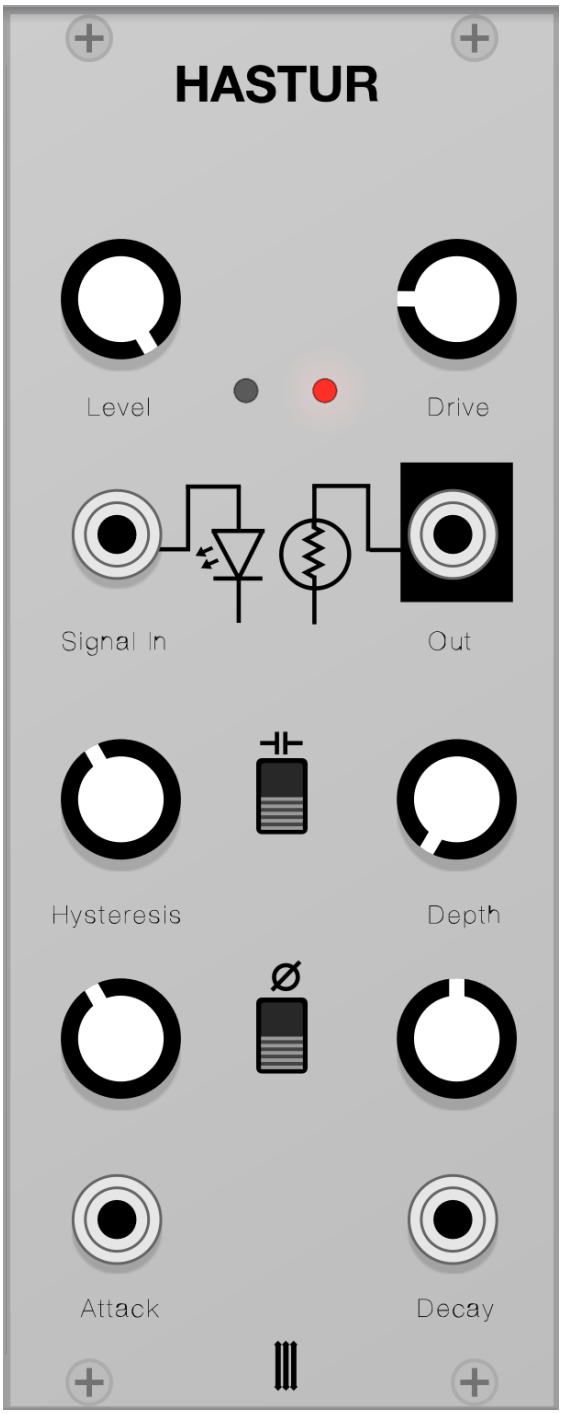
HASTUR
Level
Drive
Signal In
Out
Hysteresis
Depth
Attack
Decay

Hastur

Hastur is a simulated vactrol. It is truly modular in that it allows you direct access to a basic electronic component to do what you wish. Want to turn your vanilla VCA/VCF into a lowpass gate? Just send a trigger/impulse response into the input. Need a weird waveshaper with analog modeling capabilities? Praise Hastur. This circuit is almost exactly the same as the vactrol simulation in Yog-Sothoth, but rather than emulating a specific use case, you can make like Aleister Crowley and "do what thou wilt."

I/O:

In receives any gate, trigger or impulse response, audio or control signal.

Out is the signal that has been processed by the vactrol.

The *Attack* and *Decay* CV inputs control the respective parameters. The curve of these slopes has been modeled on the characteristics of real vactrols.

Knobs:

Level attenuates the input level.

Drive saturates the output signal.

Hysteresis is a lagging force that slowly returns the voltage output to a higher voltage. The *Hysteresis* knob controls how long this process takes.

Depth controls the maximum voltage the output will return to.

Attack controls the time it takes for the resulting signal to reach its peak. Due to the unique properties of photocells the vactrols take longer to decay than they do reach peak voltage.

Decay controls the time it takes for the resulting signal to fall to its lowest point.

Signal Path:

A Word on Vactrols:
Vactrols are an early implementation of voltage control, also known as optocouplers. They consist of a photo-resistor and a light source, typically an LED, so that when you send voltage into the LED and increase the brightness, you control how much voltage can pass through the photo-resistor.

Some early synthesizers, most notably those made by Don Buchla, used vactrols, and this gave them some characteristic properties, most notably their ability to convert a trigger to an envelope

that was great for percussive and plucked string sounds. The reason this happens is that photocells don't change resistance immediately as the light hits them, there is a lag, and the attack is shorter than the decay, which is very similar to how most sounds occur in the real world.